

REMARKS

This Amendment is responsive to the Office Action of March 06, 2002. A request for a three month extension and the corresponding fee are attached. Please charge any deficit or credit any surplus to Deposit Account No. 01-1960.

✓ 5 Non-elected Claims 15-16 have been canceled for presentation in a continuing application. Claims 1, 5, 8, and 14 have been amended while Claims 17-18 have been added. Thus, Claims 1-14 and 17-18 are pending in this case. Reexamination and reconsideration are respectfully requested.

10 **GENERALLY**

Applicant would initially like to thank the Examiner for the careful review of the disclosure. Applicant has amended the claims in view of the Examiner's helpful written comments. If it appears that any further changes are desired, Applicant invites the Examiner to telephone the undersigned attorney.

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CLAIM REJECTIONS – CLAIM 8 – §112

Claim 8 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

20 With respect to Claim 8, Applicants have amended the claim such that they no longer recite wrapper, but now recite –wrapped--.

Applicant respectfully submits that the revision to Claim 8 has resolved the §112 concerns.

CLAIM REJECTIONS – CLAIMS 1, 6-9, 11-12, and 14 – §102(e)

Claims 1, 6-9, 11-12, and 14 were rejected under 35 U.S.C. 102(e) as being anticipated by Preece et al. (US 6,126,557). This rejection is respectfully traversed.

5 The details added to Claim 1 describing the details of a non-inflected inner surface of the non-metal fiber prepreg are supported by the specification and figures 5-6, and 8-9. These specifics are not shown or taught by the prior art. This feature is more than mere design choice because it provides the advantage of a shaft that can have a small diameter and yet have relatively high weighting. Related to this, is that the
10 torsional aspects of the shaft are not adversely affected. That is, the higher torque resistance typical of larger diameter shafts is not a problem in the shafts of the present invention.

 Therefore, Applicants respectfully submit that independent Claim 1 is allowable over Preece. Applicant further submits that dependent Claims 2-4, 6-13, and 17-18 are
15 allowable for their dependence on allowable Claim 1, for the additional patentable features recited therein, and for further grounds as may be recognized by the Examiner.

 Specifically, with regard to claim 14, the Examiner holds that Preece has epoxy resin. However, Preece does not have a metal containing prepreg, but rather a metal containing film or binding matrix 10 as set forth in column 3, lines 40-41. Furthermore,
20 the metal-containing film 10 of Preece, which is being interpreted by the Examiner as a prepreg, does not appear to have any epoxy in it. The epoxy of Preece referred to in column 4, lines 33-40 is not explicitly described as forming part of the metal-containing film 10. On the contrary, the epoxy of Preece is in the various plies 11-22 as set forth in

column 3, line 31, column 4, lines 29, 30 and lines 36-37. Therefore, Preece does not have the epoxy resin in the metal-containing prepreg as now required by independent Claim 14.

5 **CLAIM REJECTIONS – CLAIM 5 – §103(a)**

Claims 5 was rejected under 35 U.S.C. 103(a) as being unpatentable over Preece et al. (US 6,126,557) in view of Beach et al. (US 6,309,309). This rejection is respectfully traversed.

10 In order to establish a prima facie case of obviousness, the combination of references must teach or suggest all the claim limitations. That is, each and every claimed feature must be provided by the references. (See MPEP §2142.) Since the Office Action asserts that “it would have been obvious to modify the shaft of Preece to have an EI value of about 4.5 kgfm² at 200 mm from a tip end” may be true, Applicant respectfully requested that a specific citation of doing so be provided. Otherwise, it is
15 respectfully submitted that Claim 5 is not properly rejected and should be allowed.

Specifically, the Examiner has cited Beach et al. as having an EI value of 4.59 kgfm². However, this value is not even referred to as a value for EI, but rather for flexional rigidity. Furthermore, this value is at the tip of the shaft of Beach as recited in Claim 3 of Beach instead of at a point 200 mm from the tip as required by Claim 5. Still
20 further, 4.59 kgfm² is not about 4.5kgfm². This is especially so because the 4.59 kgfm² is at a lower extreme of a claimed range in the Beach et al. reference, and 4.5 kgfm² is at the upper extreme of the range claimed in the present invention.

Accordingly, it can be seen that none of the limitations of original Claim 5 are met by either of Beach et al. or Preece.

Therefore, Claim 5 in its amended independent form is considered to be allowable, and notice thereof is respectfully requested.

5

ADDITIONAL CLAIMS

Additional Claims 17 and 18 are considered to be allowable as being dependent on allowable Claim 1. However, Claims 17 have additional features, which may provide separate patentability in addition to the patentable features of Claim 1.

10 Specifically, Claim 17 recites the inner surface that is formed by the non-metal fiber 10, 14, 14a in combination with the metal-containing prepreg 110. This surface has an inflection point as can be seen in FIGS. 5, 6, 8, and 9. This inflected inner surface is advantageously formed on the complimentary inflected surface of the mandrel 13. The inflected surface of the mandrel is provided by a recess 12, as shown
15 and described in the Figures and Specification page 14, lines 3-8. The inflected inner surface of the golf shaft has the advantages set forth above in the arguments against the rejection of Claim 1 above. Therefore, the structural differences are not simply a matter of design choice, and Claim 17 is considered to be allowable over the prior art.

Claim 18 further modifies the matter of Claims 1 and 17, and recites a through
20 hole in the tip of the golf shaft. The through hole has a diminished size in the portion of the through hole defined by the metal-containing prepreg as compared to a portion of the through hole that is defined by the non-metal fiber prepreg. This structure is not

shown or taught by the prior art of record. Therefore, Claim 18 is considered to be allowable.

Notice that Claims 17 and 18 are allowable is earnestly requested.

5 **SUMMARY**

Based on the above amendments and accompanying remarks, Applicant respectfully submits that all pending claims are in condition for allowance and earnestly solicits a notice thereof. Applicant encourages the Examiner to telephone the undersigned attorney if it appears that a telephone conference would facilitate
10 allowance of the application.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231 on

September 6, 2002

by Angela Williams

Signature 

September 6, 2002

Respectfully submitted,



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Version With Markings To Show Changes Made

In the Specification:

The paragraph starting on page 14, line 3 as follows:

5

Figure 6 shows the preferred mandrel 13 used to make a shaft according to this invention. The mandrel 13 is tapered off more than an ordinary mandrel near the tip to provide a recess 12 that accommodates the metal-containing prepreg layer 7. The metal-containing prepreg 7 is rolled around the recess 12 until it covers the recess 12
10 such that the then-formed subassembly has a constant or non-inflected tapering as indicated in Figure 6.

In the Claims:

15 The claims have been amended as follows:

- 1 1. (Once amended) A golf club shaft formed by winding a plurality of layers around a
2 mandrel with a main body having a body surface and a mandrel tip having a tip surface
3 that is recessed relative to the body surface of the main body of the mandrel, wherein
4 the mandrel that is removed after curing, the golf club shaft comprising:
5 a layer of metal-containing prepreg wrapped at a tip of the shaft; ~~and~~
6 a layer of non-metal fiber prepreg wrapped adjacent to the layer of metal-
7 containing prepreg and throughout a length of the shaft; and

8 wherein the non-metal fiber prepreg is supported on the metal-containing prepreg
9 and forms a generally non-inflected inner surface throughout the length of the shaft.

1 5. (Once amended) A golf club shaft formed by winding a plurality of layers around a
2 mandrel that is removed after curing comprising:

3 a layer of metal-containing prepreg wrapped at a tip of the shaft;

4 a layer of non-metal fiber prepreg wrapped adjacent to the layer of metal-
5 containing prepreg throughout a length of the shaft, and

6 ~~The golf club shaft of Claim 1~~ wherein the golf club shaft has an elasticity index
7 (EI) value about 3.0 - 4.5 kgfm² at 200 mm from the tip.

1 8. (Once amended) The golf club shaft of Claim 6 wherein the layer of non-metal fiber
2 prepreg is wrapped ~~wrapper~~ over the inner-most layer of metal-containing prepreg.

1 14. (Once amended) A golf club shaft formed by winding a plurality of layers around a
2 mandrel that is removed after curing comprising:

3 a layer of metal-containing prepreg wrapped at a tip of the shaft;

4 a layer of non-metal fiber prepreg wrapped adjacent to the layer of metal-
5 containing prepreg throughout a length of the shaft, and

6 ~~The golf club shaft of Claim 12~~ wherein the metal-containing prepreg comprises a
7 ~~the-synthetic resin sheet~~ including ~~comprises~~ epoxy resin.

Claims 17-18 have been added as follows:

1 17. The golf club shaft of Claim 1, wherein the metal-containing prepreg and the non-
2 metal fiber prepreg together form an inflected inner surface.

1 18. The golf club shaft of Claim 17, wherein the inflected inner surface has a through
2 hole that is smaller in a portion defined by the metal-containing prepreg than in a portion
3 defined by the non-metal fiber prepreg.